Ch 2 Trig

Right Angled Triangles

Pythagorean Theorem $c^2=a^2+b^2$

Sum of int $\Delta = 180^\circ$

c = hyp

SOH CAH TOA

$\sin\theta = \frac{O}{H}$ $\cos\theta = \frac{A}{H}$ $\tan\theta = \frac{O}{A}$

A, θ, hyp, adj, O, opp, C

Jan 9-2:24 PM

Terms:

Angle of depression: horizontal, θ

Angle of Elevation: θ, horizontal

h, 18°, 18°

Jan 9-2:29 PM

Ex 1 Find d

SOH CAH TOA adj

6ft, 72°, opp, d, hyp

SOH CAH TOA

$\cos 72^\circ = \frac{A}{H}$

$\cos 72^\circ = \frac{6}{d}$

$d = \frac{6}{\cos 72^\circ}$

$= \frac{6}{0.3090}$

$= 19.4$

Jan 9-2:31 PM

Ex 2 Find Θ

SOH CAH TOA

C, hyp, 50 cm, θ, A, 1.0m, B

100 cm adj

opp

$\tan\theta = \frac{50}{100}$

$\tan\theta = 0.5000$

$\theta = \tan^{-1}(0.5000)$

$\theta = 27$

Jan 9-2:33 PM

Sine Law

- Non right angle triangles
- Matching pair ∠A and a

A, b, c, B, a, C

Label Triangle
- UPPER CASE = Angles
- lower case = sides

sides = $\frac{\sin\angle A}{a} = \frac{\sin\angle B}{b} = \frac{\sin\angle C}{c}$

- Must have 3 pieces of information to find the 4th

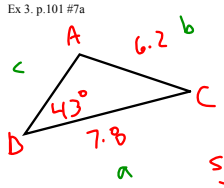
∠s = $\frac{a}{\sin\angle A} = \frac{b}{\sin\angle B} = \frac{c}{\sin\angle C}$

Jan 9-2:35 PM

Jan 12-1:31 PM

Ex 3. p.101 #7a

Solve for ∠A



$\frac{\sin 43}{6.2} = \frac{\sin \angle A}{7.8}$

$\frac{7.8 \sin 43}{6.2} = \sin \angle A$

$\frac{7.8(0.6820)}{6.2} = \sin \angle A$

$= \sin \angle A$

$\sin^{-1}(0.8580) = \angle A$

$59° = \angle A$

Jan 9-2:38 PM

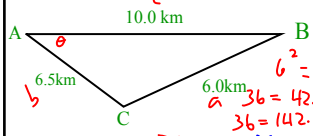
Cosine Law

- all three sides
- 2 two sides and an enclosed angle

Ex-4 Find A

a = 6
b = 6.5
c = 10

$a^2 = b^2 + c^2 - 2bc \cos \angle A$



$6^2 = 6.5^2 + 10^2 - 2(6.5)(10)\cos A$

$36 = 42.25 + 100 - 130 \cos \angle A$

$36 = 142.25 - 130 \cos \angle A$

$36 - 142.25 = -130 \cos \angle A$

$\frac{-106.25}{-130} = \frac{-130 \cos \angle A}{-130}$

$0.8173 = \cos \angle A$

$\cos^{-1}(0.8173) = \angle A$

$35° = \angle A$

Jan 9-2:39 PM

Jan 12-1:52 PM